



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,104	01/18/2002	Chul-Hwan Choi	SEC.890	6556

7590 04/30/2004

VOLENTINE FRANCOS, P.L.L.C.  
Suite 150  
12200 Sunrise Valley Drive  
Reston, VA 20191

EXAMINER

BRAHAN, THOMAS J

ART UNIT	PAPER NUMBER
	3652

DATE MAILED: 04/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/050,104	CHOI ET AL. 
<b>Examiner</b>	<b>Art Unit</b>	
Thomas J. Brahan	3652	

-- Th **MAILING DATE** of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 13 February 2004.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 12 and 13 is/are pending in the application.  
4a) Of the above claim(s) 12 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 13 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All    b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.  
\_\_\_\_\_

Art Unit: 3652

1. It is unclear as to whether applicant intended to cancel claim 12, as indicated in the remarks in the amendment filed February 13, 2004. It appears in the listings of the claims as being withdrawn from consideration, not canceled.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Appropriate correction is required. The specification fails to describe an axial side-by-side direction of the process chambers and fails to describe the movements of the robot arm as being independently linearly translatable in the first axial direction, as recited in new claim 13.

3. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which applicant regards as his invention.

4. Claim 13 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The claim alternatively uses the terms “load lock”, “loadlock” and “load-lock” as to have inconsistent claim terminology.

b. In lines 16-18, claim 13 recites that “a number of load-lock chambers are disposed side-by-side in the first axial direction” as to repeat the limitation of line 6 and 7 of the claim. Was applicant intending to claim that the process chambers were also in side-by-side relationships?

c. It is unclear as to how the applicant is considering the robot arm as “independently” translated in the first axial direction, as recited in line 21 of new claim 13. The robot arm moves with the robot, which is not really independent movement. As the specification fails to discuss this movement, it is unclear as to how the movement can be considered as “independent”.

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Art Unit: 3652

6. Claim 13, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Muka in view of over Wagner et al. Figures 5A and 5B of Muka show the claimed arrangement of a transfer chamber (104) having a first side (the left side as seen in figure 5B) and a second side (the right side as seen in figure 5B) located directly opposite the interior of the transfer chamber from the first side, a plurality of load lock chambers (108) connected to the transfer chamber independently of each other at the first side of the transfer chamber, some of the load lock chambers of being disposed at a plurality of levels, respectively at the first side of the transfer chamber, a number of the load lock chambers disposed side-by-side in a first axial direction on at least one of the levels, and each of the load lock chambers having first and second doors that separate the interior of the load lock chamber from the environment outside the equipment and the interior of the transfer chamber, respectively; a plurality of process chambers (chambers G, H and the two chambers below them) in which wafers are processed, the process chambers being connected to the transfer chamber independently of each other at the second side of the transfer chamber, each of the process chambers being disposed directly across the transfer chamber from a respective one of the load lock chambers and vice versa (that is each of the four process chambers being considered), whereby some of the process chambers are disposed at the plurality of levels, respectively, at the second side of the transfer chamber; and a robot disposed in the transfer chamber. Muka et al varies from claim 13 as the robot does not move as claimed i.e. laterally in the direction defined by the side-by-side direction of the load lock chambers. Wagner et al shows a similar transfer chamber with plural load lock and process chambers located side-by-side and at different levels. Wagner et al discloses various robots for the transfer chamber including one in figure 8b which moves the robot arm laterally in two directions, the X direction and the Y direction, linearly in the vertical direction, with movements K and H, and rotationally, with the robot arm extending the wafer end effector with a radial drive (780). The robot arrangement allows flexible configuration of the robot movements, see column 11 lines 54-62. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the transfer chamber of Muka et al by replacing its robot with a robot having a robot arm which moves in lateral directions (X and Y) and elevating and rotating directions, and extends and retracts the wafer end effector, as to have a more versatile configurations for the robot movement, as taught by Wagner et al.

7. Kim et al is cited as showing a similar transfer chamber with plural load lock and process chambers located side by side and at different levels and a robot that move laterally and elevates and extends the wafer end effector. Marxer et al shows stacked load lock and processing chambers.

8. Applicant argues in the amendment filed February 13, 2004 that the embodiment of figures 5A and 5B of Muka does not have the process chambers disposed side-by side in a first axial direction. However even though the chambers of Muka are at an angle to each other, they are still side-by-side, and the direction of this side-by-side relationship, i.e. the direction of a line connecting the two adjacent closet surfaces, would be an axial direction. The limitation side-by-side does not specify parallel sides as applicant appears to be arguing. Also, as

Art Unit: 3652

noted in paragraph 4(b) above, this limitation is not in claim 13, as instead the claim has a redundant limitation for the load lock chambers. Note that as the robot of the Wagner et al reference moves in two directions, in X and Y axes, a combination of these movements would have the robot move in any direction in the space in front of the process chambers. Also the typical manner of aligning these X and Y axes for these robots would have one axis aligned with the side-by-side direction of the processing chambers. Applicant's remaining remarks were considered, but deemed moot in view of the new rejections above. Applicant's amendment necessitated the new grounds of rejection, accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. An inquiry concerning this communication should be directed to Thomas J. Braham at telephone number (703) 308-2568. The examiner's supervisor, Ms. Eileen Lillis, can be reached at (703) 308-3248. The fax number for all patent applications is (703) 872-9306.



4/26/08  
Thomas J. Braham  
Primary Examiner  
Art Unit 3652